

## NATIONAL TRANSPORTATION SAFETY BOARD

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IN RE: :
   
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THE EL FARO INCIDENT OFF : NTSB Accident No.
   
THE COAST OF THE BAHAMAS ON : DCA16MM001
   
OCTOBER 1, 2015 :
   
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Interview of: ROBERT MARKLE

Tuesday,
   
March 22, 2016

Radio Technical Commission for
   
Maritime Services

Arlington, Virginia

BEFORE:

R. JON FURUKAWA, NTSB
   
THOMAS ROTH-ROFFY, NTSB\*
   
CDR [REDACTED] USCG\*
   
PAUL WEBB, USCG\*
   
LT [REDACTED] USCG, JAG CORPS\*
   
LOUIS O'DONNELL, ABS\*
   
PATRICIA FINSTERBUSCH, TOTE SERVICES\*
   
LEE PETERSON, TOTE SERVICES\*

\*Present via telconference

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TAKEN ON  
\_\_\_\_\_

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7	24	pre-fall	free-fall
20	10	Notice of . . .	Advance notice of . . .
32	9	Malger (phonetic)	Mauger
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If, to the best of your knowledge, no corrections are needed kindly circle the statement “no corrections needed” and initial in the space provided.

NO CORRECTIONS NEEDED. \_\_\_\_\_  
Initials

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Printed Name of Person providing the above information

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Signature of Person providing the above information

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Date

P-R-O-C-E-E-D-I-N-G-S

(2:08 p.m.)

MR. FURUKAWA: It is Tuesday, the 22nd of March, 2016. We're here for an interview. Most of the people are participating by phone conference.

Mr. Robert L. Markle is president of the Radio Technical Commission for Maritime Services in Arlington, Virginia, known as RTCM.

And Mr. Markle, can I just call you Bob?

MR. MARKLE: Yes, that's okay.

MR. FURUKAWA: Thank you. In his past life, he was Chief of Lifesaving and Fire Safety Division at Coast Guard Headquarters.

And we're going to go around the room again for the transcriber. This is Jon Furukawa with the NTSB.

MR. MARKLE: Robert Markle.

MR. FURUKAWA: And Tom?

MR. ROTH-ROFFY: Tom Roth-Roffy, National Transportation Safety Board.

MR. FURUKAWA: Lou?

MR. O'DONNELL: Louis O'Donnell, ABS Americas, party to the Engineering Group with NTSB.

MR. FURUKAWA: Okay, and TOTE.

MR. PETERSON: Lee Peterson, TOTE Services,

1 party coordinator.

2 MS. FINSTERBUSCH: Patty Finsterbusch,  
3 Survival Group, party member.

4 MR. FURUKAWA: Okay. And Coast Guard party  
5 members?

6 CDR [REDACTED] Hi, this Commander [REDACTED]  
7 [REDACTED] I'm part of the NTSB's Operations Group.

8 MR. WEBB: This is Paul Webb. I'm part of  
9 the Survival Group.

10 LT [REDACTED] This is Lieutenant [REDACTED] [REDACTED]  
11 I'm with the Coast Guard Office of Maritime and  
12 International Law. And I'm acting as counsel for the  
13 witness.

14 MR. FURUKAWA: Okay. I thank everybody.  
15 Bob, do you acknowledge that this interview is being  
16 recorded?

17 MR. MARKLE: Yes.

18 MR. FURUKAWA: Okay, do you acknowledge that  
19 we've discussed the NTSB mandatory briefing items?

20 MR. MARKLE: Yes, we did.

21 MR. FURUKAWA: Okay, we've got everybody's  
22 name and affiliation. And we're going to do this round  
23 robin, two turns around. And when you guys speak up,  
24 just introduce yourself again for the transcriber.

25 Bob, I'd like to start off with your

1 professional background?

2 MR. MARKLE: Okay, I graduated with a  
3 Bachelor of Science in Mechanical Engineering from  
4 Pennsylvania State University. I also have a Master of  
5 Business Administration from George Washington  
6 University. I worked for the Army, U.S. Army at Fort  
7 Belvoir for about eight years out of college.

8 In 1975, joined the Coast Guard which at  
9 that time was the Lifesaving Appliances Branch. I was  
10 originally responsible for engineering responsibilities  
11 for such things as lifeboats, emergency position  
12 indicating radio beacons, and emergent suits, then  
13 called exposure suits and some of the other various  
14 small items that go into lifeboats and life rafts.

15 By 1982, I was the Chief of that branch that  
16 became the Lifesaving and Fire Safety Division. And  
17 held that until 2002, when I retired from the Coast  
18 Guard and joined RTCM where I am today.

19 MR. FURUKAWA: Okay. How many years of  
20 experience is that?

21 MR. MARKLE: I can't count that high.

22 MR. FURUKAWA: Okay. And Bob, what's your  
23 age, please?

24 MR. MARKLE: Sixty-nine.

25 MR. FURUKAWA: Okay. And you pretty much

1 described your former position with Coast Guard,  
2 lifeboats, emergent suits, survival gear.

3           You said that you -- let's get into some  
4 questions and then we'll back track into the history of  
5 the background of lifesaving and all that.

6           MR. MARKLE: Okay.

7           MR. FURUKAWA: The El Faro, it was built in  
8 1975 and it was equipped with two open lifeboats. One  
9 was a diesel propelled and the other one had fleming  
10 gear.

11           Can you discuss lifeboat survivability of a  
12 ROLO vessel such as the El Faro, built 40 years ago, as  
13 compared with a similar ROLO vessel built today, having  
14 the open lifeboat, diesel propelled and fleming gear.  
15 Would it be the same today?

16           MR. MARKLE: Today, a vessel like that would  
17 be required to have totally enclosed motor-driven  
18 vessels -- motor-driven lifeboats on each side of the  
19 vessel, capable of accommodating everyone on board or  
20 else a single freefall lifeboat launched off the stern,  
21 capable of carrying 100 percent of the persons allowed  
22 to be on board. And in both cases, there would also be  
23 inflatable life rafts provided as well.

24           MR. FURUKAWA: Okay. The El Faro had two  
25 life rafts on each side, so 100 percent of people on

1 both. Okay.

2 For the boat built today, having the totally  
3 enclosed lifeboats on each side, each one capable of  
4 carrying everybody on board, is there -- let's see, for  
5 the embarkation station, is it going to be on the  
6 weather deck? Does it have to be closed?

7 MR. MARKLE: It can be on the weather deck.  
8 Actually, there are several options, but the main thing  
9 is that the boat needs to be able to be boarded in its  
10 stowed position.

11 MR. FURUKAWA: Okay.

12 MR. MARKLE: And launched from that position  
13 as contrasted to the older, open lifeboats which were  
14 typically rolled down to deck level and then boarded  
15 while they were hung over the side and then launched  
16 from that position, usually, with a crew member  
17 remaining on board the boat to operate the winch. The  
18 new lifeboat installations, that can all be carried out  
19 from inside the boat.

20 MR. FURUKAWA: And that's pretty much the  
21 same thing for the freefall lifeboat astern?

22 MR. MARKLE: Yes. There's no need for  
23 everyone to remain -- anyone to remain on board to  
24 launch the boat.

25 MR. FURUKAWA: Okay, the El Faro was in a

1 Cat. 4 hurricane. Is there any provision that the  
2 egress of the crew members to be in some kind of  
3 protected -- within the skin of the ship, I guess, to  
4 get to the lifeboat?

5 MR. MARKLE: No, there's not.

6 MR. FURUKAWA: There's not. So it would be  
7 okay -- it's not against the rules for them to go on  
8 the weather deck?

9 MR. MARKLE: Right.

10 MR. FURUKAWA: In bad weather?

11 MR. MARKLE: That's correct.

12 MR. FURUKAWA: So with your background, is  
13 it possible for a crew to abandon ship in a Cat. 4  
14 hurricane such as the El Faro?

15 MR. MARKLE: In what type of survival  
16 equipment?

17 MR. FURUKAWA: A lifeboat.

18 MR. MARKLE: Open lifeboat?

19 MR. FURUKAWA: No, no, no. Not an open  
20 lifeboat, but with what you have today and maybe what's  
21 planned in the future? Would there be a way to  
22 successfully abandon ship?

23 MR. MARKLE: I would expect so. Of course,  
24 the pre-fall lifeboat probably has a higher probability  
25 of success because when you're using a davit launch to



1 a lifeboat, you're still attached to the falls, as the  
2 boat enters the water and it needs to be appropriately  
3 released. That may take a little more skill than the  
4 free-fall lifeboat.

5 But the totally enclosed lifeboats close the  
6 hatches. The boat is essentially water tight, so it  
7 might be a pretty rough ride. And of course, there's  
8 no guarantee you're not going to collide with the ship  
9 or debris or anything like that in the water. But you  
10 would hope it would be adequate for those conditions.

11 MR. FURUKAWA: For life rafts, for this  
12 accident, the Coast Guard search and rescue, they found  
13 one partially inflated life raft. And they checked it  
14 to make sure no one was in there and they sunk it so  
15 they wouldn't rediscover it. And that was pretty much  
16 it for the five life rafts I believe that they had.  
17 Four, and they had one extra.

18 MR. MARKLE: One forward.

19 MR. FURUKAWA: One forward, yes. So moving  
20 on from lifeboats, is there a survival possibility from  
21 a life raft in a storm such as this?

22 MR. MARKLE: My estimation is that it would  
23 be pretty difficult in an inflatable life raft. They  
24 are there primarily as backup in case the boats can't  
25 be used for some reason because there is damage in way

1 of the boat or the list is too heavy in one direction  
2 or another. It just gives you another chance. If they  
3 are also arranged to float free, so that if someone has  
4 to go into the water because they couldn't get to the  
5 lifeboat, couldn't use a lifeboat, at least there's a  
6 possibility that there would be a life raft inflated on  
7 the water available to them. But of course, as the  
8 conditions get worse, the more difficult it is actually  
9 to get to the life raft and get aboard.

10 MR. FURUKAWA: Like I said for the El Faro,  
11 there was just one partially inflated, so the way life  
12 rafts are designed, out of five of them, with the  
13 hydrostatic release and all that, that should have -- I  
14 mean more than one should have popped open and maybe  
15 eventually got water in the sea anchor.

16 MR. MARKLE: Yes. The float-free  
17 arrangement is not fool proof. It's possible, for  
18 example, for the ship to roll in such a way that a raft  
19 might be released and somehow entrapped in the wreckage  
20 or caught underneath or perhaps it inflates and  
21 involved in the wreckage in such a way that it's so  
22 damaged that it doesn't inflate properly. So there are  
23 a number of things that could happen. Again, it's  
24 primarily a back-up system.

25 MR. FURUKAWA: Okay, and I'd like to move

1 into the survival suit. In this accident, when weather  
2 started getting calm, a helicopter -- or I guess it was  
3 a Navy P-8, saw a survival suit and the helicopter came  
4 in and discovered human remains. And they were never  
5 able to -- they went off to look for another person and  
6 when they came back, they couldn't rediscover it, so  
7 those remains weren't recovered. But for a survival  
8 suit, you're supposed to be buoyant, even when you're  
9 unconscious. And I guess the flap should help you with  
10 sea foam.

11 MR. MARKLE: There's usually a flap over the  
12 face to help you avoid ingesting water.

13 MR. FURUKAWA: Right. Okay. So the  
14 survival chances of someone in a survival suit in warm  
15 water, that person should have survived?

16 MR. MARKLE: Well, it depends on how long  
17 they were in the water, even something that's warm  
18 water. Even warm water can be a risk of hypothermia  
19 after a certain period of time, so you'd have to ask  
20 some questions as to how -- whether it was properly  
21 donned, whether it was damaged in any way or something  
22 else that would allow the ingress of water.

23 And of course, the other thing is in the  
24 conditions you described, drowning is also a  
25 possibility. It's not a drown-proof suit.

1 MR. FURUKAWA: Okay. I guess that would  
2 also be for debris, too, protection?

3 MR. MARKLE: Yes.

4 MR. FURUKAWA: Okay. That's all I have  
5 right now for me for the first round.

6 Tom, do you have any questions for Bob?

7 MR. ROTH-ROFFY: Yes, Jon. Thank you. Tom  
8 Roth-Roffy, NTSB. Good afternoon, Bob.

9 MR. MARKLE: Hi, Tom.

10 MR. ROTH-ROFFY: Just a few questions, sir,  
11 to follow up on some issues. Were you involved in any  
12 matters related to the El Faro during your term at the  
13 Coast Guard regarding lifesaving appliances or other  
14 similar things?

15 MR. MARKLE: Not that I recall.

16 MR. ROTH-ROFFY: Okay. Are you familiar  
17 with the grandfathering issue related to vessel safety  
18 equipment that would have applied perhaps on the El  
19 Faro?

20 MR. MARKLE: Lifesaving equipment? Yes.

21 MR. ROTH-ROFFY: Could you describe the  
22 grandfathering issue with regards to the Coast Guard's  
23 allowance for older equipment?

24 MR. MARKLE: Well, in simple terms with some  
25 exceptions, existing ships were allowed to retain their

1 existing lifesaving arrangements when the regulations  
2 went into effect, as long as those lifesaving  
3 arrangements remained in good and serviceable  
4 condition. So with some exceptions, which are outlined  
5 in the rules, for instance, I think the requirement for  
6 life rafts was 50 percent capacity. That was increased  
7 to 100 percent and I believe that was applied to  
8 existing vessels, but as far as lifeboats and their  
9 launching equipment, those vessels were allowed to  
10 retain their arrangements as long as they were  
11 serviceable.

12 MR. ROTH-ROFFY: Okay. And so there was no  
13 provision for requiring installation of modern  
14 lifesaving equipment even if it could be shown the  
15 existing equipment was substandard or no longer  
16 appropriate for its use?

17 MR. MARKLE: I would say as long as it was  
18 in good, structural, and mechanical condition that it  
19 can continue to be used and actually, I believe that  
20 they would be allowed to replace a boat in kind if  
21 something happened to the boat. So if they were able  
22 to find another comparable open lifeboat to replace an  
23 existing one, they would normally be permitted to do  
24 that as well.

25 MR. ROTH-ROFFY: Okay. And are you aware of

1 any new standards for lifesaving equipment that perhaps  
2 are coming into effect in the new future and how they  
3 might relate to the existing ships such as El Faro and  
4 per their construction?

5 MR. MARKLE: I'm not aware of anything  
6 developing in terms of retrofitting existing ships.

7 MR. ROTH-ROFFY: What about new standards?  
8 Has there been any improvement in the last say ten  
9 years in survivability for lifesaving equipment such as  
10 lifeboats, life rafts, etcetera, that you're aware of?

11 MR. MARKLE: The main area has been in the  
12 release gear and that wasn't so much related to  
13 casualties as it was to accidents that were occurring  
14 during drills. The release gear in the lifeboats is  
15 designed so that they would release under load in the  
16 water and there's an override that allows you to  
17 release them, even if the boat is not in the water.

18 There were a number of manufacturers who  
19 produced release gear which was probably not up to what  
20 it should be, so in the past years at IMO, they have  
21 significantly strengthened those release gear  
22 requirements. And another factor was the degree of  
23 maintenance that the release gear received. So that  
24 has been -- that's gotten a lot of attention  
25 internationally. And of course, the U.S. would also

1 follow that as well.

2 MR. ROTH-ROFFY: And regarding freefall  
3 lifeboats, are you aware of the rationale for stowing  
4 those and which vessels are affected by any such  
5 requirements, international or Coast Guard, for  
6 freefall lifeboats?

7 MR. MARKLE: It's an option. You can have  
8 the davit launch totally in closed lifeboats on either  
9 side of the ship. When we're talking about cargo  
10 ships, that's capable of carrying 100 percent each side  
11 or the freefall lifeboat. It's up to the designer, the  
12 owner, to make that decision.

13 There had been some discussion about making  
14 freefall lifeboats mandatory on certain classes of  
15 vessels. I would have to research where that's gone  
16 recently, but generally, it's at the  
17 designer/builder/owner's option.

18 MR. ROTH-ROFFY: That's current regulations  
19 and in your knowledge there's not any move to require  
20 it?

21 MR. MARKLE: I wouldn't say there's not any  
22 move. Remember, I haven't been directly involved in  
23 these regulations since 2002, so what may be going on  
24 in detail, I wouldn't know.

25 MR. ROTH-ROFFY: Okay. Are you aware of any

1 of the pros and cons in your recollection of freefall  
2 lifeboats?

3 MR. MARKLE: Generally, my preference is for  
4 the freefall lifeboats simply because the launching of  
5 the boat is less complicated for the operators and I  
6 think that the more boat handling skills that are  
7 required of modern crew members, the more risk you may  
8 face because, for instance, crews often shift from one  
9 vessel to another. The lifesaving equipment is a  
10 little bit different. So they don't necessarily become  
11 intimately familiar with the lifesaving equipment on  
12 their ships. So I tend to favor the freefall lifeboat  
13 for a number of reasons.

14 On the other hand, I know there is a certain  
15 amount of shall I say fear of freefall lifeboats on the  
16 part of crewmen that maybe haven't trained in them or  
17 otherwise been launched in one. It seems -- it can  
18 seem like a dangerous evolution to someone who is not  
19 really familiar with it. So that's led to I think some  
20 misguided allowances in some cases for not having to do  
21 drills with freefall lifeboats.

22 MR. ROTH-ROFFY: Are you aware of any  
23 studies that perhaps evaluated the cost differences  
24 between the two arrangements and perhaps the impact on  
25 a ship's arrangement?



1 MR. MARKLE: I'm not.

2 MR. ROTH-ROFFY: I think that's all I have  
3 for now for this round. Thanks, Bob. Jon?

4 MR. FURUKAWA: Thanks, Tom. Coast Guard.  
5 How about Paul?

6 MR. WEBB: Jon, I don't have any questions  
7 right now.

8 MR. FURUKAWA: Okay. How about [REDACTED]

9 CDR [REDACTED] I do. Thank you, Mr. Markle.  
10 A few quick questions. You mentioned some discussion  
11 of mandating freefall lifeboats on certain classes of  
12 vessels. Were those discussions that you were  
13 referring to during your tenure with the Coast Guard or  
14 is that something you became aware of more recently?

15 MR. MARKLE: That's something I became aware  
16 of more recently and I'm not sure where it stands at  
17 the moment. Again, it's just something I've read  
18 because I've tried to keep up to speed on some of these  
19 things. But that was not a matter of discussion when I  
20 was working for the Coast Guard.

21 CDR [REDACTED] Do you know who was involved  
22 in those particular discussions? You maybe read an  
23 article about it or had discussions with some prior  
24 colleagues. I'm curious whether it was in reference to  
25 discussions held officially at IMO or some offline sort

1 of informal discussions?

2 MR. MARKLE: My recollection is -- and I'm  
3 saying this with not being 100 percent certain, so I  
4 thought there was some concern about either bulk  
5 carriers or tankers being mandatorily equipped with  
6 freefall lifeboats, but other than that, it would take  
7 some research on my part to find it, if I could find  
8 it.

9 CDR [REDACTED] Okay, I understand. And  
10 during your term with the Coast Guard, were you  
11 involved with the IMO processes and development of this  
12 particular -- these particular regulations and so it  
13 would affect lifesaving?

14 MR. MARKLE: Yes, I was, beginning in 1975.

15 CDR [REDACTED] And can you maybe tell us how  
16 the Coast Guard regulations that you were referring to  
17 earlier, it wasn't specifically stated, but I believe,  
18 correct me if I'm wrong, you're speaking of 46 CFR  
19 Subchapter W which is Part 199. Is that correct?

20 MR. MARKLE: Yes.

21 CDR [REDACTED] Just for clarification of  
22 anyone reading this transcript in the future. And  
23 during your involvement in the development of those  
24 regulations as well as the IMO process that wrote  
25 SOLAS, can you describe for us the discussions that

1 took place in that venue as far as existing vessels and  
2 allowing them to keep existing arrangements?

3 MR. MARKLE: In that venue, you're referring  
4 to IMO?

5 CDR [REDACTED] IMO and then after discussion  
6 of the IMO side, if you could describe how the U.S.  
7 regulations mirror IMO and how they perhaps may differ  
8 from IMO from SOLAS?

9 MR. MARKLE: Well, I don't think that there  
10 was any real expectation at IMO that there was going to  
11 be a retrofit requirement because that would have been  
12 opposed very strongly by ship owners and some of the  
13 IMO delegations as being really fairly expensive  
14 because it's not just a matter of hanging a new boat on  
15 the old davits. Totally enclosed lifeboats are  
16 bulkier, heavier and really require the different  
17 launching system than the typical launching system that  
18 was used for open boats.

19 So some fairly significant structural  
20 changes to the ship itself might be necessary in order  
21 to retrofit such boats. So although it may have been  
22 discussed at IMO, I don't think there is any real  
23 expectation that there would be a retrofit requirement.  
24 And of course, after a certain period of time, older  
25 ships are phased out and newer ships are introduced

1 because they offer efficiency advantages and that sort  
2 of thing. So I think there was an awareness that over  
3 time these older ships would be replaced in any case.

4 When it came to U.S. regulations, generally,  
5 the ships that were being built after 1986 which was  
6 when the SOLAS rules came into effect, I believe they  
7 had to meet SOLAS requirements for Hawaii and Alaska  
8 services. And I think just about anybody building a  
9 major ship, even if it wasn't intended for those  
10 services would build to the SOLAS requirements so that  
11 it could be certificated as a SOLAS vessel somewhere  
12 along the line.

13 At one point when we were initially  
14 proposing the regulations, we asked the question as to  
15 whether or not a retrofit requirement should be imposed  
16 and that was a question that was in the Federal  
17 Register. Generally, that was opposed by ship owners  
18 primarily for the same reasons I just discussed, the  
19 expense and difficulty of actually performing a  
20 retrofit.

21 Let's see. I will say at the same time,  
22 about 1994, 1995, when the final rules for Subchapter W  
23 were being adopted, there was actually a lot of  
24 pressure from ship-owning interests to try to remove  
25 the differences between U.S. requirements and

1 international requirements because of the commercial  
2 disadvantage that U.S. operators were at compared to  
3 some foreign operators. And in fact, there was one of  
4 the authorization acts around that time. I forget if  
5 it's the '95 or '96 act included some language that the  
6 Coast Guard should investigate -- and again, I'm not  
7 quoting directly, but should be to the extent possible  
8 allowing the use of equipment, lifesaving equipment  
9 that was approved by foreign administrations. And that  
10 language eventually developed into a mutual recognition  
11 agreement between the United States and the European  
12 Union to recognize certain of each other's approvals.

13 And I believe the Coast Guard at that time,  
14 adopted a policy to minimize the difference between  
15 U.S. regulations and international regulations to the  
16 extent possible. There were some exceptions made, but  
17 generally the feeling was that we needed to align  
18 ourselves with the international requirements as much  
19 as possible.

20 CDR [REDACTED] So correct me if I'm wrong,  
21 basically what you're saying is Subchapter W could have  
22 been written to exceed requirements of SOLAS,  
23 essentially require a higher level of safety if the  
24 U.S. decided to do so. We published -- when you spoke  
25 of the question of retrofit was published in the

1 Federal Register, were you referring to Subchapter W,  
2 Notice of Proposed Rulemaking or a different Federal  
3 Register published?

4 MR. MARKLE: I believe it was the Advanced  
5 Notice of Proposed Rulemaking, actually.

6 CDR [REDACTED] Okay. Perfect.

7 LT [REDACTED] If I could just jump in real  
8 quick. This is Lieutenant [REDACTED]

9 CDR [REDACTED] Certainly.

10 LT [REDACTED] Notice of Proposed Rulemaking was  
11 published in the Federal Register on Monday, December  
12 31, 1984. And the Federal Register citation for that  
13 is 49 Federal Register 50745. And then we published  
14 the Notice of Proposed Rulemaking on Friday, April 21,  
15 1989. And the citation for that is 54 Federal Register  
16 16198. And then we went to an interim rule with  
17 requests for comment. That was published on Monday,  
18 May 20, 1996, 61 Federal Register 25272. And then that  
19 rule was final on October 1, 1998 in 63 Federal  
20 Register 52802.

21 All of the Subchapter W rulemaking processes  
22 is in each of those documents.

23 MR. FURUKAWA: [REDACTED]

24 LT [REDACTED] Yes.

25 MR. FURUKAWA: This is Jon. Can you forward

1 those to me and I'll distribute to everybody that's  
2 calling in?

3 LT [REDACTED] Yes.

4 MR. FURUKAWA: Thank you.

5 LT [REDACTED] There was also a -- I believe it  
6 was a technical amendment that had some minor changes  
7 that came in after. One, either the interim final rule  
8 is a final rule, I can't remember exactly, but there  
9 was not significant substantive discussion about any of  
10 the issues with lifeboats or anything like that in that  
11 technical change.

12 MR. MARKLE: [REDACTED] I actually think there  
13 were two corrections after the final rule, but again,  
14 fairly minor.

15 LT [REDACTED] Yes. Jon, I'll go ahead and send  
16 all those documents to you.

17 MR. FURUKAWA: Great. Thank you, [REDACTED]

18 CDR [REDACTED] Thank you, Lieutenant [REDACTED]  
19 and also Mr. Markle mentioned an authorization act. I  
20 believe you said 1995 or 1996. If you happen to know  
21 which one that might be, that might be another area  
22 where we can research and distribute to the group.

23 LT [REDACTED] This is Lieutenant [REDACTED] again.  
24 So it looks like that was incorporated into 46 U.S.C.  
25 Section 3306(c). And I will get together the

1 documentation on the legislative history for that and  
2 send that over to you guys as well.

3 CDR [REDACTED] Thanks so much. That  
4 concludes my questions for this particular round.  
5 Thank you, all.

6 MR. FURUKAWA: Okay, and ABS?

7 MR. O'DONNELL: Jon, just to clarify one  
8 thing to help Mr. Markle, I'm sorry he doesn't have  
9 SOLAS and everything right in front of him, but it was  
10 bulk carriers only as of 1 July 2006 are required to  
11 freefall lifeboats, with an optional life raft and the  
12 rest you go to arrangement (phonetic). The other  
13 vessels it's optional to have the freefall lifeboats.  
14 And I have no questions.

15 MR. FURUKAWA: Thank you. Okay, thank you,  
16 Lou. TOTE. Lee, you first.

17 MR. PETERSON: I'll defer to Patty here.

18 MR. FURUKAWA: Okay.

19 MS. FINSTERBUSCH: Patty Finsterbusch, TOTE  
20 Services. Just a couple of quick questions. What is  
21 the degree of list that a vessel -- if a vessel has  
22 that you can't lower a open lifeboat?

23 MR. MARKLE: They were supposed to be able  
24 to be launched up to a list of 15 degrees, as I recall.  
25 Some of them in actuality it might have been something



1 higher than that. But it seems to me that was the  
2 number. I have to research that to make sure it wasn't  
3 20. But 15 is the number that sticks in my mind.

4 LT [REDACTED] Mr. Markle, this is Lieutenant  
5 [REDACTED] Is that going to be in the CFR?

6 MR. MARKLE: It will be in the old CFR. You  
7 have to go back through the historical -- well, yes.

8 LT [REDACTED] Okay, but that would be in some  
9 versions of Subchapter W.

10 MR. MARKLE: No. It might -- well, it  
11 probably would be in Subchapter I when the lifesaving  
12 equipment requirements were in Subchapter I before  
13 Subchapter W was published because remember, we're  
14 talking about open lifeboats here. And you would also  
15 need to go to Subchapter Q 160.032 which is davits.  
16 And that number might be in there as well. It's either  
17 15 or 20. I think it's 15.

18 LT [REDACTED] One more clarifying question on  
19 that, is there a difference between closed and open  
20 lifeboats on that requirement?

21 MR. MARKLE: I think, you know, I would have  
22 to go back to the regulations itself to be absolutely  
23 certain, but some different language was used about  
24 adverse list of trim and I don't recall it off the top  
25 of my head.

1 MR. O'DONNELL: Mr. Markle, excuse me, this  
2 is Louis O'Donnell. If LSA would apply same as  
3 lifesaving appliance code, same as the CFR, I'd have to  
4 go back in the historical CFR, but I think it would be  
5 23, up to 22 degree list is required.

6 MR. MARKLE: Okay.

7 MR. O'DONNELL: Now this is in the newer LSA  
8 code. I'm sorry. I don't have the historical document  
9 in front of me, but it should be 10 degrees each side  
10 of the vertical and 10 fore and aft planes and then 20  
11 degrees both inboard and outboard. So basically, bow  
12 to stern, 10 degrees and then 20 degrees port to  
13 starboard, the vessel -- the davits should be able to  
14 launch the lifeboats, as I recall. But I'll have to go  
15 check historical data to see what is different for  
16 freefall lifeboats, but I do not think it is. Like I  
17 said, I would have to double check.

18 MR. MARKLE: Yes, I would as well. It's  
19 been 15 years since I've dealt with this in some  
20 details and I'm sorry I don't remember every little  
21 detail at the moment.

22 LT [REDACTED] Patty and Lou, this is [REDACTED]  
23 again. There is some discussion of the degree of list  
24 in the Federal Register Notice of Proposed Rulemaking  
25 that we had from April 21, 1989. The citation for that

1 that will be included in the documentation I'll send to  
2 Jon is 54 Federal Register 16209. And it's where the  
3 angle list discussion starts.

4 MS. FINSTERBUSCH: Thank you. My second  
5 question, I think we might have gotten into it as we  
6 were talking about the enclosed, so if we had a single  
7 freefall lifeboat off the stern, would any degree of  
8 list have affected that, I guess, is my question.

9 MR. MARKLE: At some point, you might have  
10 the boat binding up on the rails if it's too steep.  
11 But I would expect that it would probably be capable of  
12 being launched at something greater than 20 degrees  
13 typically, but I don't know that it's tested or  
14 qualified for more than that.

15 MS. FINSTERBUSCH: Okay. Thank you. That's  
16 all my questions.

17 MR. FURUKAWA: Okay. It's Jon Furukawa  
18 again from NTSB. I don't think I have any more  
19 questions for you. [REDACTED] is going to send us those  
20 Federal Registers.

21 Okay, Tom, anything for you?

22 MR. ROTH-ROFFY: No, nothing, Jon. Thank  
23 you.

24 MR. FURUKAWA: Coast Guard. [REDACTED]

25 CDR [REDACTED] I do have one follow up that I

1 thought of after I concluded.

2           Mr. Furukawa asked you, Mr. Markle, about  
3 survivability in survival suits. You spoke in terms of  
4 hypothermia and drowning. If you can reach back into  
5 your recollection regarding just the floatability of  
6 survival suits and if you happen to know about any type  
7 of technical documents or technical standards regarding  
8 how long a survival suit should float in the water. As  
9 you may have heard from our first round of hearings in  
10 Jacksonville, we discussed a crew member who was found  
11 deceased. The Coast Guard then diverted, attempted to  
12 find another potential survivor, and were unable to  
13 relocate that particular person.

14           There's a question as to why that was not  
15 possible. So my question to be direct is would a  
16 survival suit that's found once be expected to be found  
17 again or would it technically, depending on its  
18 technical survivability, would it ever sink after being  
19 found once?

20           MR. MARKLE: I don't think so. These things  
21 are made out of closed cell foam. You could cut them  
22 into little pieces and all the little pieces would  
23 float and it would float indefinitely I think.

24           CDR [REDACTED] Thank you.

25           MR. O'DONNELL: Just to add clarity per the

1 LSA code, the trim and list launching conditions, the  
2 same for a freefall as they are for a davit launch.  
3 I'm not saying for CFR, but they're the same.

4 MR. MARKLE: That was my recollection, too,  
5 that there weren't different standards adopted for  
6 freefall as for davit launch in terms of list and trim.

7 MR. FURUKAWA: Thanks, Lou. [REDACTED] do you  
8 have any more questions?

9 CDR [REDACTED] I don't. That covers all my  
10 questions. Thank you.

11 MR. FURUKAWA: Okay. Paul?

12 MR. WEBB: Yes, nothing further.

13 MR. FURUKAWA: Okay. ABS, Lou?

14 MR. O'DONNELL: No, no further questions.  
15 Thank you.

16 MR. FURUKAWA: TOTE, Patty?

17 MS. FINSTERBUSCH: No further questions.

18 MR. FURUKAWA: And Lee?

19 MS. FINSTERBUSCH: He doesn't have any  
20 questions.

21 MR. FURUKAWA: Okay. Thank you. Okay, so  
22 that's it. Tom --

23 MR. ROTH-ROFFY: Yes, Jon. I actually do  
24 have one follow up.

25 MR. FURUKAWA: Okay. Great.

1 MR. ROTH-ROFFY: Tom Roth-Roffy, NTSB. Bob,  
2 there was some discussion about the rulemaking efforts  
3 and the objectives of some U.S. operators regarding  
4 U.S. versus international standards. And I guess if  
5 I'm understanding you correctly, the decision was to  
6 allow those vessels to operate with the international  
7 standards. Is that correct?

8 MR. MARKLE: Yes.

9 MR. ROTH-ROFFY: So the question is I  
10 believe it was said or implied that the U.S. standards  
11 were more stringent, the national standards, and then  
12 for U.S. vessels to comply with the burden of that.  
13 Could you describe, to the extent you recall, the  
14 differences between the U.S. and the international  
15 standards?

16 MR. MARKLE: The U.S. standards did and to a  
17 degree still do go into a greater extent on component  
18 quality for instance. I'm familiar with the European  
19 marine equipment directive, for instance, and I know  
20 that it doesn't directly have the same kind of  
21 requirements in it. For instance, the marine equipment  
22 directive will reference the IMO documents that say the  
23 material shall be made out of -- should be corrosion  
24 resistant and that sort of thing. The U.S. regulations  
25 have typically gone into detail on the type of steel

1 that should be used in order that it's of a grade that  
2 doesn't get brittle when it's cold, the kind of  
3 aluminum that's used because you need to have a marine  
4 grade of aluminum or otherwise you're going to have  
5 corrosion problems.

6 Also, the electrical and piping requirements  
7 as they may apply to, for instance, lifeboat engines,  
8 we've seen foreign lifeboats that have clear plastic  
9 fuel tubes on them. You couldn't get away with that on  
10 a U.S. lifeboat. You'd have to have an SAE braided  
11 fuel line, for instance. So it was those kinds of  
12 quality differences.

13 We also had requirements that when you type  
14 approve a new lifeboat, you do a number of tests to it.  
15 You drop it from a three-meter height. You pull it out  
16 from the side of a solid wall and let it smash into the  
17 wall to replicate or simulate a boat being swung back  
18 and forth on its davits against the hull of a ship.

19 The Coast Guard requires that the hull be  
20 made of a clear, unpigmented resin so that the hull can  
21 be examined after these tests, to see what level of  
22 damage is sustained. That's typically not done by  
23 other agencies.

24 So it's that kind of detail that the U.S.  
25 regulations get into that possibly can add cost to an

1 approved -- Coast Guard approved lifesaving device  
2 compared with something that's comparable, approved by  
3 another administration. Is that what you were looking  
4 for, Tom?

5 MR. ROTH-ROFFY: Yes, indeed. I understand  
6 what you said regarding the quality of material and  
7 testing requirements. Is there anything in your mind  
8 that strikes a difference between the U.S. and the  
9 international regulations, meaning obviously a lower  
10 standard?

11 MR. MARKLE: Well, just the things I just  
12 talked about because of the larger tests, they're all  
13 defined by the IMO recommendation on testing of  
14 lifesaving equipment and the Coast Guard follows those.  
15 But it's in some of these details that there's a  
16 difference.

17 MR. ROTH-ROFFY: So the current requirements  
18 for U.S. vessels are international regs or is it still  
19 on the U.S. regs applied?

20 MR. MARKLE: It's a combination. It's a  
21 combination of the detailed U.S. requirements plus the  
22 basic performance requirements that are set down by  
23 IMO.

24 MR. ROTH-ROFFY: Thanks very much, Bob.  
25 That's all I have, Jon.



1 MR. FURUKAWA: Okay. And one more thing for  
2 you before we end it. Would you know of any reason  
3 where a vessel such as the El Faro when she was  
4 extended or would she be required to upgrade her  
5 survival gear like lifeboats?

6 MR. MARKLE: It would depend upon whether or  
7 not the modification was to such an extent that the  
8 vessel receives a new build date and if that was the  
9 case, then it would normally be required to meet all of  
10 the standards of a ship built on that date and maybe  
11 Lou at ABS is more familiar with that than I am of what  
12 causes a vessel to get a new build date.

13 MR. FURUKAWA: Okay.

14 MR. ROTH-ROFFY: What causes a vessel to get  
15 a new build date?

16 MR. MARKLE: Yes, the degree of modification  
17 required.

18 LT [REDACTED] This is Lieutenant [REDACTED] can I  
19 just interject real quick? Mr. Markle, can we clarify  
20 that you were not involved in the decision as to  
21 whether or not vessels' modifications require a new  
22 built date?

23 MR. MARKLE: I was not involved in that.  
24 That's true.

25 LT [REDACTED] Okay, and were you involved with

1 any policy about those types of determinations?

2 MR. MARKLE: No, I don't think so.

3 LT [REDACTED] Okay.

4 CDR [REDACTED] And this is Commander [REDACTED]  
5 [REDACTED] with the Coast Guard. I believe the topic  
6 we're discussing now essentially major modifications  
7 which we did discuss with Captain McAvoy from  
8 Commercial Vessel Compliance, Coast Guard Headquarters,  
9 as well as Captain Malger (phonetic) during the Marine  
10 Board investigations. I believe that's the topic we're  
11 referring to here.

12 MR. FURUKAWA: [REDACTED] this is Jon. Did they  
13 answer that question? Was that question posed to them  
14 about the degree of modification required a new build  
15 date?

16 CDR [REDACTED] It was discussed and also what  
17 was discussed was which components, which systems would  
18 be required to be brought up to current standards, so  
19 it was discussed rather in some length.

20 LT [REDACTED] This is [REDACTED] I would agree  
21 with that. There was significant discussion with both  
22 Captain Malger and Captain McAvoy about major  
23 modification and major conversions and what those  
24 implications had on lifesaving systems on board the  
25 vessels.

1 MR. FURUKAWA: Okay. I wasn't at those --  
2 at that part of the hearing. Can you guys briefly let  
3 me know what the testimony was, if it was brief?

4 LT [REDACTED] This is [REDACTED] I'll try and  
5 characterize it with respect to the El Faro, so in the  
6 early to mid-2000s, the El Faro -- well, the El Faro  
7 went under two different engineering changes to the  
8 vessel configuration. The first was the lengthening  
9 which we've discussed and that was deemed to be a major  
10 modification and there are a number of documents  
11 already in the record about that modification from the  
12 early '90s.

13 There was a second change to the ship's  
14 configuration in its conversion from service type. In  
15 the early to mid-2000s, that was originally deemed to  
16 be a major modification although there were a number of  
17 requests for reconsideration and appeals of that  
18 decision that ultimately led to its being deemed not a  
19 major modification. And as I said, there's a fairly  
20 extensively record already developed on both of those  
21 determinations through Captain Malger and Captain  
22 McAvoy's testimony.

23 CDR [REDACTED] And what I would add for you,  
24 Jon, is that testimony is still available on the  
25 livestream website. So it would be probably -- rather

1 than trying to go into more detail here, I would  
2 recommend maybe going back and listening to that.

3 MR. FURUKAWA: Okay. Great. Thanks. And  
4 with that unless there's -- anybody brings anything up  
5 now, last chance before ending this interview?  
6 Anybody?

7 Okay, nothing heard.

8 LT [REDACTED] This is [REDACTED] Let me jump in  
9 one more time. Bob, I have one quick question. In the  
10 beginning of the interview, we talked a fair bit about  
11 hypothetical survivability in Category 4 hurricanes.  
12 Were those responses that you gave a reflection of the  
13 standards that this equipment is built to or your -- or  
14 in your judgment how that equipment should behave given  
15 those conditions?

16 MR. MARKLE: Yes, it's a matter of judgment  
17 of how it should behave in those conditions. Knowing  
18 that a totally enclosed lifeboat is designed to be  
19 watertight, it is designed to be self-righting or come  
20 to a position where above-water escape is possible if  
21 it becomes flooded. That's -- those kinds of  
22 requirements simply don't exist for an open lifeboat.  
23 So when you're talking about comparable survivability,  
24 which is probably a better way to look at it, that was  
25 really the approach I was taking.

1 LT [REDACTED] And one more follow-on question  
2 on that, since the updates to Chapter 3 of SOLAS, do  
3 you know if there has been continuing efforts to update  
4 the standards for open lifeboats or has that pretty  
5 much been abandoned since the Chapter 3 updates in the  
6 1980s.

7 MR. MARKLE: Chapter 3 does not address open  
8 lifeboats at all any more.

9 LT [REDACTED] I see.

10 MR. O'DONNELL: Lieutenant, excuse me, this  
11 is Louis O'Donnell. That would LSA. That's a  
12 requirement for the design and testing of lifeboats.

13 LT [REDACTED] I'm looking at our Federal  
14 Register notice from 1989 and it says on June 17, 1983,  
15 the IMO Maritime Safety Committee approved SOLAS 74-83  
16 including a new Chapter 3 for lifesaving appliances and  
17 arrangements. I think that was the precursor to the  
18 LSA. So since 1983, do you know if there have been any  
19 updates to the requirements for open lifeboats?

20 MR. MARKLE: No, because you're not allowed  
21 to build them or get them approved any more.

22 MR. O'DONNELL: Exactly.

23 LT [REDACTED] Okay, thank you.

24 MR. FURUKAWA: Since 1986, you're not  
25 allowed to --

1 MR. MARKLE: 1986.

2 MR. FURUKAWA: 1986. You're now allowed to  
3 build or require an open lifeboat?

4 MR. MARKLE: No ships are allowed to be  
5 equipped with them as new ships.

6 MR. FURUKAWA: Okay. Thank you. As we end  
7 the interview, is there anything that you'd like to add  
8 or change?

9 MR. MARKLE: No, I don't think so.

10 MR. FURUKAWA: Are there any questions that  
11 we should have asked, but did not?

12 MR. MARKLE: I guess the one thing I would  
13 add that maybe I should have mentioned when we were  
14 talking about the possibility of retrofitting is that  
15 it wouldn't be simply a matter of the Coast Guard  
16 deciding that a retrofit of open lifeboats or totally  
17 enclosed lifeboats should be required and that would be  
18 that. The requirements of law and policy are that a  
19 cost benefit analysis would have to be done and such a  
20 requirement would have to be shown to be beneficial  
21 from a cost standpoint as well. So I should have  
22 included that in that discussion.

23 MR. FURUKAWA: Cost benefit analysis and a  
24 change would have to show --

25 MR. MARKLE: Yes, the Coast Guard was under

1 the Department of Transportation at the time and the  
2 Department of Transportation had some number or some  
3 number of million dollars that would be justified to  
4 spend to save a human life.

5 MR. FURUKAWA: Okay. Thank you. Any more  
6 questions that we should have asked?

7 MR. MARKLE: I can't think of any.

8 MR. FURUKAWA: Okay. Next is do you have  
9 any suggestions for preventing a recurrence of an  
10 accident like this or fatalities, survivability?

11 MR. MARKLE: Well, from a lifesaving  
12 equipment standpoint?

13 MR. FURUKAWA: Yes, sir.

14 MR. MARKLE: Well, certainly the totally  
15 enclosed lifeboats give you a better chance of  
16 surviving than an open lifeboat in terms of their ease  
17 and speed of launching and protection of the occupants  
18 once you're in the water.

19 MR. FURUKAWA: Okay. And any other  
20 suggestions?

21 MR. MARKLE: No.

22 MR. FURUKAWA: Last question is is there  
23 anyone else that we should interview?

24 MR. MARKLE: I can't think of anyone else.  
25 I was involved in this from 1975 onward and I can't

1 think of anyone else surviving who would have any more  
2 information than I do.

3 MR. FURUKAWA: Okay. Thank you very much.  
4 And the time is now 1507 on the 22nd of March 2016.  
5 It's Tuesday and we are ending the interview with Mr.  
6 Robert L. Markle, the former Chief of Lifesaving and  
7 Firesafety Division at the Coast Guard. Thank you very  
8 much.

9 (Whereupon, the above-entitled matter went  
10 off the record at 3:07 p.m.)  
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C E R T I F I C A T E

MATTER: El Faro Incident  
October 1, 2015  
Accident No. DC16MM001  
Interview of Robert Markle

DATE: 03-22-16

I hereby certify that the attached transcription of page 1 to 78 inclusive are to the best of my professional ability a true, accurate, and complete record of the above referenced proceedings as contained on the provided audio recording; further that I am neither counsel for, nor related to, nor employed by any of the parties to this action in which this proceeding has taken place; and further that I am not financially nor otherwise interested in the outcome of the action.



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